

Effect of some cation impurities on the electro refined of copper at low temperatures

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The effect of certain cations as Zn, Sn, As and Ni, individually and in admixture, during the electro refining of copper was studied at temperatures up to 450C. The electrolyte used resembled that used in a refining factory. Each of these cations had affected the surface quality of the electro deposited cathode. Nodules and rough precipitate was usually obtained. The presence of these cations in admixture were found to decrease their deleterious effect and good precipitates were obtained, at current densities up to 30 mA cm⁻². -. Rough deposits usually accompanied increasing either the temperature or current density and addition of glue and thiourea were found to be essential to get the required surface quality. Potentio-dynamic and galvanostatic experiments clarify that; at such low temperature increasing the applied current density is usually accompanied by passivation of the anode. SEM micrographs of the electrodeposited copper, under the different conditions, were given. Schedule for the Electro refining process at such temperatures is given.